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Arapahoe County Diverts the Mentally III to Treatment (ADMIT): A Program Evaluation

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ABSTRACT

The primary objective of the Arapahoe County Diverts the Mentally III for Treatment (ADMIT) program is to provide intensive, outpatient services to mentally ill and dually diagnosed offenders at the Patrick Sullivan Detention Facility (PSDF), thereby reducing recidivism. A preliminary evaluation regarding the program's effectiveness in reducing mental health problems and recidivism, and its cost-effectiveness and a number of other results are presented. Many offenders who were discharged from ADMIT (N = 117 as of March 2010) have been successful graduates. The average ADMIT client was 39 years old, male, Caucasian/White, and has been charged with a misdemeanor. ADMIT graduates had the lowest probability of recidivating to PSDF. ADMIT clients had a 13.6% decreased probability of recidivating to PSDF when compared to a group of similar offenders. ADMIT graduates (those who met treatment goals) had a 18.3% decreased probability of recidivating to PSDF when compared to ADMIT completers (those who completed their sentence but did not meet treatment goals). ADMIT clients showed significantly decreased mental health symptoms between enrollment and 3-6 month follow-up, which suggests that they are making important gains in treatment. Future directions are discussed.



Keywords: Co-occurring disorders, diversion, evaluation, recidivism, treatment

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Introduction

Prevalence estimates of mental illnesses in U.S. jails have varied widely due to a number of reasons including methodological differences and settings. Specifically, prevalence estimates have been reported in a range of 14.5-64% of the jail population (Bureau of Justice Statistics, 2006; Steadman et al., 2009). For those with severe mental illnesses, approximately 72% have dual diagnoses, or a mental illness and a substance abuse disorder (Abram & Teplin, 1991). Persons with co-occurring mental illness and substance abuse disorders are eight times more likely to be noncompliant with psychiatric treatment, a profile that leads to higher incidence of treatment failure, suicide, hospitalization, violence, homelessness, and high risk behaviors including endangering personal and public health and safety (Hunt, Bergen, & Bashir, 2002). Because of this, cost-effective, comprehensive services are needed to assist in the effective re-entry of individuals from jail to the community-at-large to reduce recidivism and improve symptomatology.

The Arapahoe County Diverts the Mentally III for Treatment (ADMIT) program was established in March 2008 as a partnership between the Aurora Mental Health Center (AuMHC), the Aurora Research Institute (ARI), and the Arapahoe County Sheriff's Office (ACSO) to implement treatment for mentally ill/dually diagnosed offenders. The primary goals of this program are to reduce recidivism by reducing the burden of mental illness and substance dependence in these individuals and save jail costs.

The ADMIT program serves incarcerated adults in the municipal or county jail in Arapahoe County, Colorado who are non-violent offenders, age 18 or older, with serious mental illness or dually diagnosed with a serious mental illness and a substance abuse disorder. ADMIT is funded through the ACSO and is designed as a post-booking diversion program to serve non-violent adults with mental illness. Participants receive a variety of services through this multidisciplinary, wraparound program, including individual and group therapy; urinalyses (UA's); medication, and community linkages to vocational, employment, educational, self-help, and medical services. The program's objective is to reduce the use of jail bed days by offenders with mental illness or dual diagnosis and provide them services in a more treatment appropriate setting.

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The program evaluation component of ADMIT, conducted by the ARI, involves a process evaluation of the planning (decision making), treatment fidelity monitoring, data collection, and data analysis. ADMIT data collection begins at the ACSO and continues periodically as clients progress through the program. ADMIT clients are asked to complete a battery of research measures with ARI staff every 3-6 months (depending upon the length of sentence) and at discharge on a voluntary referral basis. ADMIT clients also complete clinical measures to assess their mental health symptoms, drug use, and resulting impairment and recovery with their clinicians as a component of treatment. The ACSO provides ARI evaluators with law enforcement data, such as sentencing court, booking date, charge, and release date. Therefore, an array of data is examined in this evaluation report.

Because of the short-time frame that ADMIT clients have been out in the community after completing the program, these results are considered to be an indicator of recidivism rates and are preliminary in nature. These rates are expected to improve across time for graduates of ADMIT compared to non-ADMIT clients as the program matures.

Results

Demographics

As of September 30, 2010, 139 distinct clients have been approved and enrolled in ADMIT. Of this figure, 22 ADMIT current clients were excluded from all subsequent analyses because they had not yet completed treatment. This resulted in a sample of 117 clients who were released into the community by August 31, 2010.

Table 1: Demographics: ADMIT

	ADMIT (N=117)	
	White	79 (67.5%)
Race	Black	28 (23.9%)
	Hispanic	9 (7.7%)
	Other/Missing	1 (0.9%)
Gender	Male	67 (57.3%)
Gender	Female	49 (41.9%)
		1 (0.9%)
Age		39 years
	Graduated	52 (44.4%)
Program Status	Revoked	36 (30.8%)
	Completed Sentence	29 (24.8%)

As Table 1 indicates, the majority of ADMIT clients are white/Caucasian males. The average client is approximately 39 years old. Program status is determined on an individual basis by consensus of the ADMIT clinical staff. Graduates are defined as those individuals in ADMIT who successfully completed the program without a major incident. Graduates have also been deemed by clinical staff to meet individualized behavioral objectives and treatment goals. The majority of participants are successful graduates of the program. Clients who have completed their sentence are defined as those who may have had moderate incident(s) during treatment (e.g., minor disciplinary sanctions, lapses), but who finished the last day of their sentence as an ADMIT client in good standing. A sizable proportion of clients fall into this category. Finally, revoked clients are those who were enrolled in ADMIT but escaped or were returned to custody due to a new violation. Revoked clients make up a significant portion of the ADMIT population. Characteristics of the ADMIT group as reported in Table 1 appear to be stable when compared to demographics reported in a previous program evaluation report.

In order to better understand treatment effects and outcomes, a comparison group was established using offenders who were jailed at Arapahoe County's jail, the Patrick Sullivan Detention Facility (PSDF), during roughly the same time period. These offenders were presented at clinical staff meetings, but were ultimately not enrolled in ADMIT. Of 217 individuals who were considered for ADMIT, a total of 136 were excluded from the comparison group because they were considered inappropriate to compare against the

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ADMIT sample. Reasons for exclusion from analysis included one or more of the following: no presence of an Axis I psychiatric condition, history of sex offense, history of gang affiliation, history of violence/public safety concerns, poor motivation for treatment, requiring higher level of treatment, referred to mental health court, fugitive of justice, and court-ordered release (including work release) individuals. Exclusion criteria also included receipt of a sentence to the Colorado Department of Corrections (DOC) and individuals who are currently being assessed, on hold, or have not yet been staffed, as these individuals would not have been at-risk for re-offense in the community. Finally, individuals who were denied admission into ADMIT for unclear or unknown reasons were excluded.

Inclusion criteria included judge denials, bonded individuals, clients referred to Arapahoe County Aftercare Program (ACAP), individuals receiving community corrections sentences, client refusals/lack of interest in ADMIT, individuals denied due to short sentences, and individuals denied due to medical issues. This resulted in 81 individuals in the comparison group sample who were released into the community by August 31, 2010 (Table 2).

Table 2: Demographics: Comparison Group

	COMPARISON GROUP (n=81)	
	White	56 (69.1%)
Race	Black	20 (24.7%)
	Hispanic	5 (6.2%)
Gender	Male	41 (50.6%)
Gender	Female	40 (49.4%)
Age		40 years
	Bonded	21 (25.9%)
	Referred to ACAP	15 (18.5%)
	Denied due to Short Sentence	15 (18.5%)
Reason for Denial	Judge Denial	13 (16.0%)
	Client Refusal	10 (12.3%)
	Community Corrections Sentence	5 (6.2%)
	Denied due to Medical Issues	2 (2.5%)

Table 2 describes individuals in the comparison group as being predominantly white/Caucasian males, with an average age of 40 years. Therefore, the comparison sample is similar to the ADMIT group on demographic factors of age, race, and gender. As the table indicates, most individuals in the comparison group were not enrolled in ADMIT due to bond status, referral to ACAP, or were denied due to judge denial or sentences too short for an effective intervention. In general, demographics of the comparison group appear to be similar as reported in the last program evaluation report.

Table 3: Offense Data: ADMIT

Variable	ADMIT (N=117)
Offense Charge ¹	
Misdemeanor	66 (56.4%)
Felony	26 (22.2%)
Traffic	20 (17.1%)
Juvenile	1 (0.9%)
Adjudicated Juvenile	1 (0.9%)
Domestic	1 (0.9%)
Missing	2 (1.7%)
Most Common Primary Charges	
DUI	18 (15.4%)
DUR	10 (8.5%)
Prostitution	8 (6.8%)
COC	6 (5.1%)
Theft	5 (4.3%)
Sentencing Court	
County	41 (35.3%)
District	37 (31.9%)
Municipal	38 (32.8%)

¹ All traffic and juvenile charges listed are misdemeanors. Adjudicated juvenile and juvenile offenses are those that ADMIT clients served as adults.

Table 3 shows that the majority of ADMIT clients are serving sentences for misdemeanor offenses. The most represented offenses include traffic-related offenses, such as driving under the influence of drugs/alcohol (DUI) and driving under revocation of license (DUR), and prostitution. To a lesser extent, felony and more serious offenses are also represented. Contempt of court (COC) was also found to be a common charge. Most clients in ADMIT are sentenced through county courts.

Table 4: Comparison Group Offense Data

Variable Offense Charge ²		Comparison Group (N=81)
-	Misdemeanor	35 (43.2%)
	Felony	31 (38.3%)
	Traffic	13 (16.0%)
	Juvenile	1 (1.2%)
	Domestic	1 (1.2%)
Most Common Charges		
	DUI	9 (11.1%)
	Prostitution	6 (7.4%)
	DUR	5 (6.2%)
	COC	5 (6.2%)
	Trespassing	4 (4.9%)
	Theft	4 (4.9%)
Sentencing Court		
	District	35 (43.2%)
	County	26 (32.1%)
	Municipal	19 (23.5%)
	Missing	1 (1.2%)

² All traffic and juvenile charges listed are misdemeanors. Juvenile offenses are those that offenders in the comparison group served as adults.

Similar to the ADMIT group, individuals in the comparison group were largely charged with misdemeanors (Table 4). Furthermore, many of the types of charges are similar to the ADMIT sample, including prostitution, DUR, COC, and DUI. Over 43% offenders in this group were sentenced by district courts.

Recidivism

For the purposes of this program evaluation, recidivism is defined by a return to PSDF on new charges; these do not count technical violations. Thus, for clients in the ADMIT program who were revoked and then returned to custody (e.g., as the result of an escape, an unexcused absence from the program), the revocation was not counted as a re-offense unless a new crime was committed. Individuals who were revoked from ADMIT were removed from all recidivism analyses based on the rationale that these clients did not receive an adequate dose of treatment due to their brief time in the program. Also, due to their revocations, these clients were typically not at-risk to recidivate, as they were still in custody of the Sheriff's office or in some cases, the DOC. The removal of 36 revoked ADMIT clients from subsequent analyses resulted in a sample of 81 ADMIT completers and graduates. Results regarding recidivism of the ADMIT and comparison groups are displayed in Table 5.

Table 5: Comparison of Recidivism to PSDF by Group

Group	Return to PSDF		Total N	
Group	YES	NO	i Olai N	
ADMIT	10	71	81 (12.3%)	
Comparison Group	21	60	81 (25.9%)	
	Differential Recidivism Rate		13.6%	

Overall, the recidivism rates are low, with an average of 19.1% of all offenders (total ADMIT and comparison group) recidivating on a new charge. ADMIT clients recidivated at a rate of 12.3%, which has increased by 0.6% since the last program evaluation report. In contrast, individuals in the comparison group recidivated at a rate of 25.9%. This number has increased by 4.8% since the last evaluation. The recidivism rate for ADMIT clients is 13.6% less compared to the Comparison Group.

A goodness-of-fit test (chi-square analysis) was conducted and indicated that the difference in recidivism between the two groups was statistically significant (df = 1, χ^2 = 4.348, p = .037). The results of the recidivism analysis thus indicate a clinically important pattern of a lower recidivism rate for those who are involved in ADMIT.

For offenders that returned to PSDF, the breakdown of new charges was as follows:

Table 6: Recidivism Charges by Group

Variable	Rate
ADMIT (n=10)	
Battery	2 (20.0%)
Book & Release	1 (10.0%)
Crimes Against Person	1 (10.0%)
Burglary	1 (10.0%)
Fugitive of Justice/Menacing	1 (10.0%)
Fugitive of Justice/Menacing	1 (10.0%)
Failure to Appear/Traffic	1 (10.0%)
ID Theft	1 (10.0%)
Violation of Protection Order	1 (10.0%)
Comparison (n=21)	
Contempt of Court	2 (9.5%)
Driving Under Revocation	2 (9.5%)
Fugitive of Justice	2 (9.5%)
Failure to Appear	2 (9.5%)
Harassment	2 (9.5%)
Battery	1 (4.8%)
Contempt of Court/Assault	1 (4.8%)
Contempt of Court/Alcohol	1 (4.8%)
Driving While Ability Impaired	1 (4.8%)
Escape	1 (4.8%)
Injury to Property	1 (4.8%)
Possession of a Controlled Substance	1 (4.8%)
Probation Violation	1 (4.8%)
Prostitution	1 (4.8%)
Vicious Dog	1 (4.8%)
Violation of Protection Order	1 (4.8%)

Based on the data presented in Table 6, it appears that most re-offenses among ADMIT clients involved identity battery, whereas a variety of other charges were more common in the comparison group, including contempt of court, driving under revocation, fugitive of justice, and harassment.

Table 7: Savings Related to Recidivism

Variable	Average Length of Time to Recidivate (days)	Average Length of New Sentence (days)
ADMIT (n=10)	224	36
Comparison Group (n=21)	130	72
Average net savings per client	94 days	36 days

Due to small sample sizes, average length of time to recidivate could not be compared for statistical significance. Based on the data, however, ADMIT clients who recidivated stayed out of jail an average of 94 days longer before committing their next offense, when compared to the untreated sample (Table 7). In addition, the second column in Table 7 shows the average of the total days spent in jail on recidivated charges. ADMIT clients had considerably shorter sentences upon re-offending at a difference of 36 days, or half the average length of time individuals in the comparison group. These differences constitute significant jail bed savings for those who participated in the ADMIT program.

Table 8: Days at Risk for Recidivism & Days Saved by Recidivism

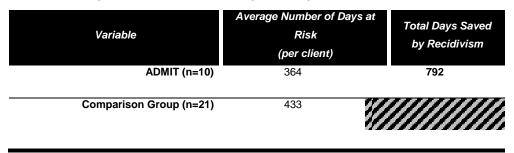


Table 8 shows the average number of days individuals in each group were in the community and at-risk for re-offending. As can be seen from the data in the first column, the number of days at-risk is higher in the comparison group. The total number of days saved by recidivism was calculated using the number of people in ADMIT who recidivated less (multiplying the comparison group's recidivism rate by the total

sample size, less any observed recidivism within ADMIT). This figure was then multiplied by the average length of sentence on the recidivated charge by individuals in the comparison group (Column 2, Table 7) to arrive at the total days saved by recidivism.

Table 9: Characteristics of ADMIT Clients who Recidivated

Variable		n=10
Program Discharge Status		
	* Completed	7 (70.0%)
	Graduated	3 (30.0%)
Gender		
	Female	5 (50.0%)
	Male	5 (50.0%)
Race		
	White	6 (60.0%)
	Black	3 (30.0%)
	Hispanic	1 (10.0%)
Age		39 yr.

^{*} Completed sentence. but did not meet behavioral criteria for graduation.

Table 9 shows that out of the 10 ADMIT clients who recidivated, the average client is typically a white/Caucasian, non-graduate/completer of the program. Recidivism was equally distributed between males and females. Based on the figures above, ADMIT graduates appear to be at considerably lower risk for recidivating compared to program completers.

Table 10: ADMIT Recidivism by Discharge Status

Program Discharge Status (n=81)	Rate of Recidivism
Completed Sentence (n=29)	7 (24.1%)
Graduated (n=52)	3 (5.8%)
Total Recidivism	18.3%

As displayed in Table 10, a substantially larger proportion of ADMIT completers, compared to graduates, recidivate after finishing the program. These results seem to indicate, as would be expected, that a much greater treatment benefit is conferred by achieving graduate status and meeting behavioral objectives and goals as measured by clinical staff.

Program Costs and Savings

Jail bed savings are calculated by the sentence of each ADMIT client who served their time in ADMIT rather than at PSDF. This number is totaled across all clients and reported in Table 11.

Table 11: ADMIT Program Savings and Costs by Year of Operation

VEAD	DAYS	SAVINGS	COSTS		
YEAR	SAVED		AuMHC	PSDF	
2008	2,461	\$206,896.27	\$178,590.52	\$99,468.36	
2009	6,290	\$467,032.50	\$264,657.29	\$118,648.60	
2010 (as of March 1)	1,471	\$109,221.75	\$44,818.50	\$19,178.54	
Total	10,222	\$783,150.52	\$488,066.31	\$237,295.50	

Final Cost Savings as of March 1, 2010: \$57,788.71

Cost savings are calculated as follows: For CY2008, the cost of housing a mentally ill/dually diagnosed inmate at PSDF was \$84.07 per day. For CY2009 and CY2010, this cost was \$74.25. To calculate cost savings, the jail bed days per year were multiplied by the cost per day for that year. AuMHC operating costs per year are also displayed by year, which are the reimbursements for services paid out by PSDF to AuMHC. PSDF costs listed describe staff salaries, vehicles, and cell phone usage. This information was provided by PSDF for 2009, and PSDF costs for 2008 and 2010 were prorated and estimated using the provided figures (average cost of \$325.06 per day). All PSDF costs associated with ADMIT-related activities are included as PSDF costs. (This includes the cost of AuMHC's ADMIT program and the associated costs for ACSO). Total cost savings was calculated by subtracting total costs from total savings.

It is also important to discuss the non-monetary costs and benefits of the ADMIT program. There are reported to be "unquantifiable" costs of dealing with mentally ill/dually diagnosed offenders within PSDF on a regular basis. For instance, the lack of treatment for these offenders can result in increased behavioral problems and disciplinary issues in PSDF, sometimes leading to damage to PSDF property and increased workload for staff. The mental health literature also shows that behavioral health issues are also correlated with medical conditions, and therefore, it is likely that these individuals are costly in terms of their medical care. PSDF staff may therefore have improved morale and decreased job-related stress and turnover as a result of the ADMIT program's transfer of mentally ill/dually diagnosed clients to work release status.

Clinical and Research Measures

ADMIT clients are followed using a variety of clinical and research measures to monitor treatment efficacy and change over time. These are followed by change scores for ADMIT clients (completers and graduates only) to track progress through treatment.

Beck Depression Inventory–II (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is a 21-item self-report measure of depressive symptomatology. Coefficient alphas for the BDI-II have been found to be .93 for a nonclinical sample. Test-retest reliability for the BDI-II has been found to be .93. Convergent validity has been found to be high (r = .71, with the Hamilton Psychiatric Rating Scale for Depression-Revised) (Dozois, Dobson & Ahnberg, 1998). Higher scores on the BDI-II are indicative of increased experienced levels of depressive symptomatology (14-19=Mild Depression; 20-28=Moderate Depression; 29-63=Severe Depression).

Brief Symptom Inventory (BSI; Derogatis, 1992). The BSI is a 53-item self-report measure of general psychological distress using nine subscales: Somatization, Obsession-Compulsion, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation and Psychoticism; and three global indices of distress: Global Severity Index, Positive Symptom Distress Index, and Positive Symptom Total. The global indices measure current or past level of symptomatology, intensity of symptoms, and number of reported symptoms, respectively. Scores of 41- 59 are considered Average, 60 – 69 are At-Risk, and 70 or above are considered Clinically Significant. The BSI has reported high internal consistency, test-retest and alternate forms reliability with coefficients ranging from .71 to .99.

Quality of Life Inventory (QOLI; Frisch, 1994). The QOLI was developed as a measure of positive mental health to supplement measures of negative affect and psychiatric symptoms in both outcome assessment and treatment planning. It is a 32-item self-report measure that addresses 16 areas of life including love, work and recreation. Higher scores indicate one's perceived quality of life is positive. The QOLI reports good psychometric properties.

Table 12: ADMIT Change Scores

Measure	N	Baseline	3-6 Month	Change Score	Statistical Significance
BDI-II	15	27.36	8.90	-18.46*	p<.001
BSI	14	47.57	37.21	-10.36*	p<.05
QOLI	38	1.02	1.83	.81*	p<.05

As Table 12 indicates, significant positive changes are noted with symptomatology decreasing as evidenced by lower scores on the BDI-II and BSI at the time of completion or graduation from the ADMIT program as compared to scores upon initially starting the program and higher scores on the QOLI, indicating a perceived increase in quality of life.

Conclusions and Future Recommendations

ADMIT was established in 2008 as a partnership between AuMHC, ARI, and ACSO to implement treatment for mentally ill/dually diagnosed offenders. The primary goals of this program are to reduce recidivism by reducing the burden of mental illness and substance dependence in these individuals and save jail costs.

Based on the results of the statistical analyses above, which are preliminary in nature, recidivism appears to have decreased in the ADMIT group by 13.6% when measured against a similar comparison group. When ADMIT clients do recidivate, the length of time to re-offend is 94 days longer. Similarly, the recidivated charges result in an average of 50% less jail bed days for ADMIT clients, which translates to an average savings of 36 days per client.

As expected, ADMIT clients make significant progress in treatment. All the clinical indices utilized, such as the BSI, BDI, and QOLI indicate that ADMIT clients make significant gains in treatment, such as

decreased frequency and severity of symptoms, and improved quality of life. These are likely to be key aspects of the ADMIT client's recovery and re-entry into the community. It is expected that future follow-up evaluations will continue to yield more positive comparisons.

Therefore, the results suggest that ADMIT completers and graduates are learning skills and acquiring tools such as education, employment, and social support in order to effectively cope with their illnesses and/or addictions. These changes in turn are likely to facilitate their re-entry into the community, thus reducing the risk for recidivism.

Given the findings that lower recidivism and other positive outcomes are associated with graduation from ADMIT, it is recommended that program staff continue to work towards increasing the number of ADMIT clients who successfully complete the program and meet individualized treatment objectives.

Other recommendations for the program include:

- Developing more housing for ADMIT clients in order to increase program enrollment;
- Developing reward systems for clients in order to encourage and recognize appropriate, prosocial, and adaptive behaviors; and
- Developing mentoring programs for clients to have an outlet for prosocial interaction, increase coping skills, and reduce criminal sentiments.

It is expected that these interventions, if implemented, will enhance the positive effects of the program and continue to facilitate successful re-entry of ADMIT offenders into the community. It is also recommended that the program continue to enroll felony offenders as long as the current screening process and criteria for selection remain intact. These changes should be monitored to help treatment staff at PSDF continue quality improvement and document recidivism and cost reduction outcomes.

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